VibeRMS

User Manual

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GETTING STARTED

VibeRMS

VibeRMS is a software for the iPad that allows users to measure and analyze vibration signals from a sensor mounted to any machine.

VibeRMS main features are the following:

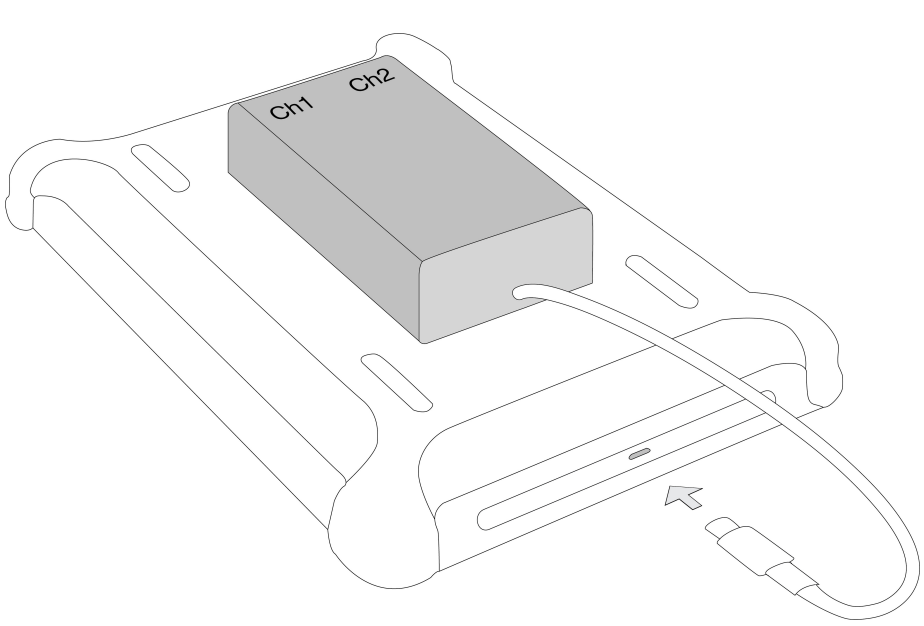
- Measure Vibration Velocity, Acceleration and Filtered Vibration Displacement.
- The ability to work with a selection of different machine arrangements present in the VibeRMS Machine Library, or in the Standard Machine Library.
- Create custom machine arrangements using Build a Machine feature.
- Threshold from different standards can be selected. A custom threshold value can also be set.
- Generate a complete Report showing all the measurements, machine information, thresholds, vibration spectrum plots and company logo.
- The Report can be sent through email or saved in the iPad. The Report Manager allows the user to view saved reports.

GETTING STARTED

Connectivity

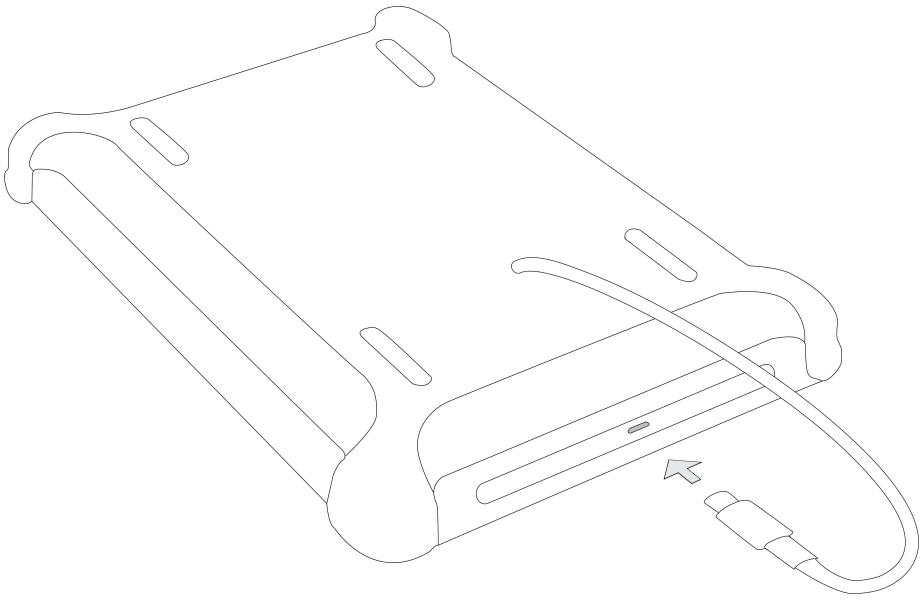
Wired DAQ

VibeRMS requires a Data Acquisition Box (DAQ) in order to acquire the vibration data. The DAQ must be connected to the iPad Dock port as shown.



Wireless Sensor

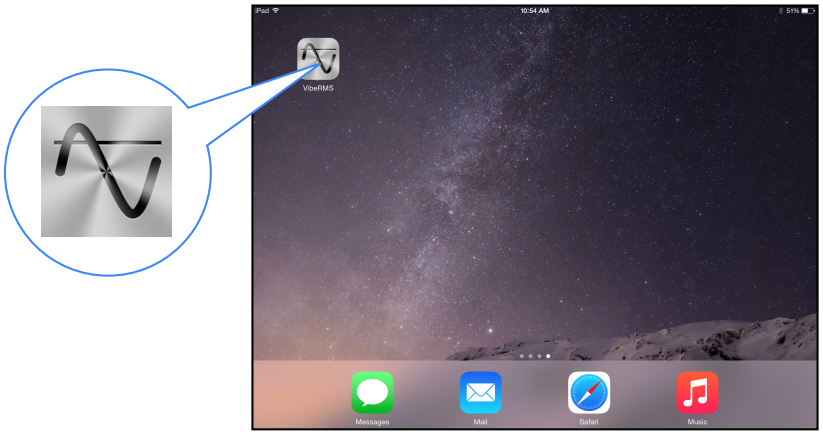
This step is also required if the wireless sensor is being used.

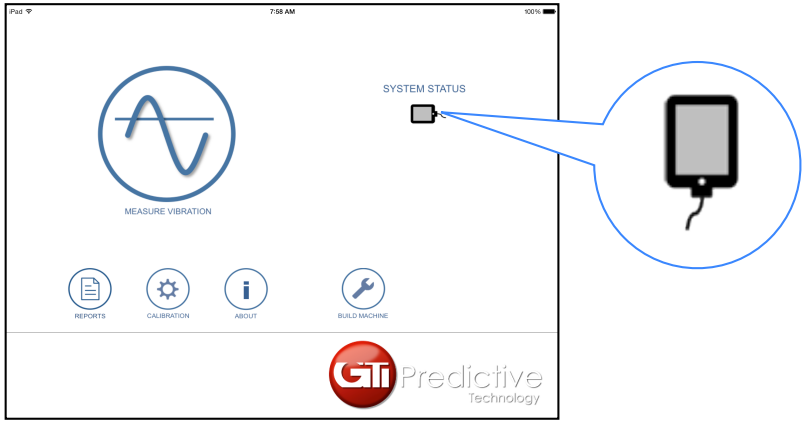


Wired DAQ

After connecting the DAQ to the iPad dock port the user must connect the sensors that will be used by the VibeRMS. In the example below an accelerometer is connected to **Ch1**.

The next step is to run VibeRMS software by selecting the VibeRMS icon in the iPad main menu screen. After the splash screen, check that the **connectivity icon** is shown without a red X.

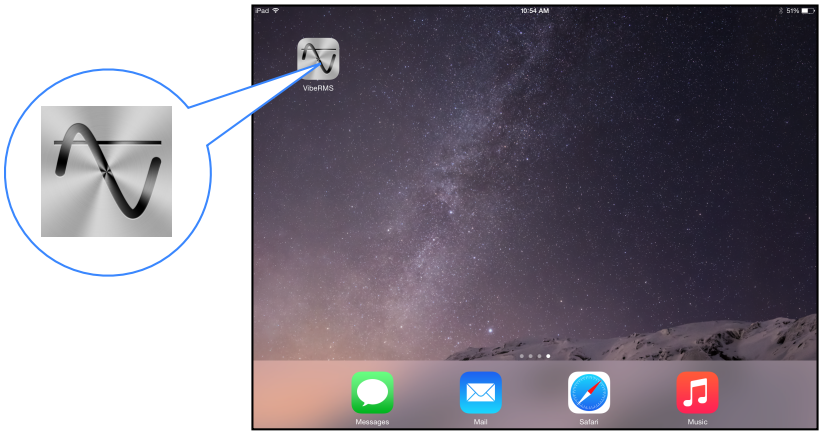


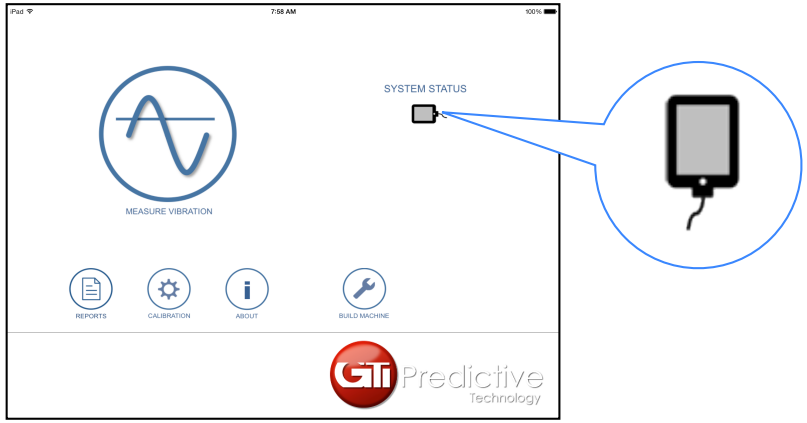


Wireless Sensor

After connecting the wireless receiver to the iPad dock port, the user must proceed to connect the sensors that will be used by the VibePro. When the receiver and sensor are paired and the VibeRMS is measuring, the blue LED will remain ON.

The next step is to run VibeRMS software by selecting the VibeRMS icon in the iPad main menu screen. After the splash screen, check that the **connectivity icon** is shown without a red X.





OPERATION

Main Menu

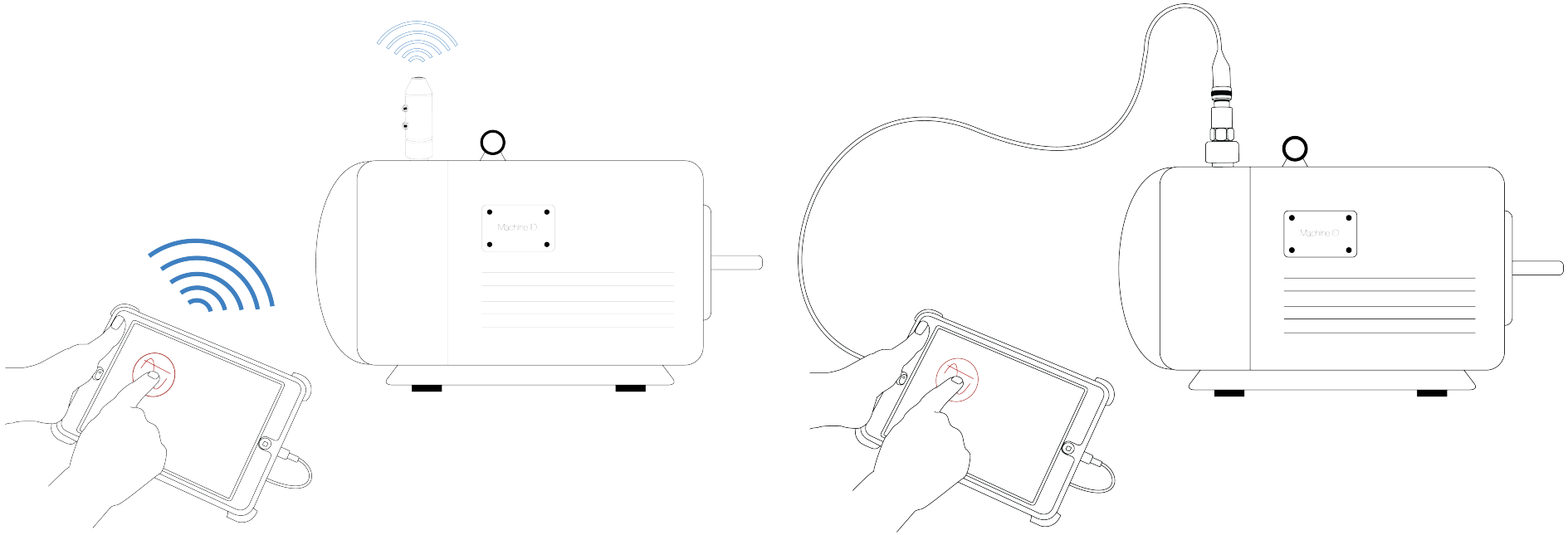
1. Measure Vibration
2. Reports
3. Calibration
4. Build Machine

Measure Vibration

Operation

The Measure Vibration option is specially designed to make a one-time vibration analysis, generate a pdf report, save it locally in the iPad or email it. Before doing a vibration analysis with VibeRMS is important that the next steps have been followed:

- The DAQ is connected to the iPad dock port. *(Page 1)*
- The Wired sensor is connected to the DAQ, or the Wireless sensor is **ON**. *(Page 2,3)*
- The connectivity icon is **not** showing a red X. *(Page 2,3)*
- The sensor is firmly attached to the machine.

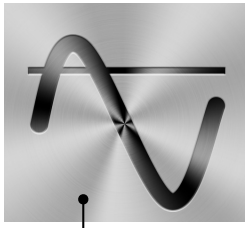


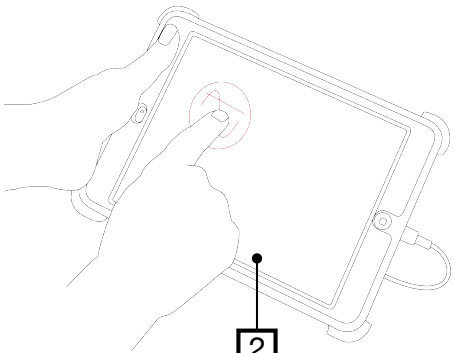
Measure Vibration

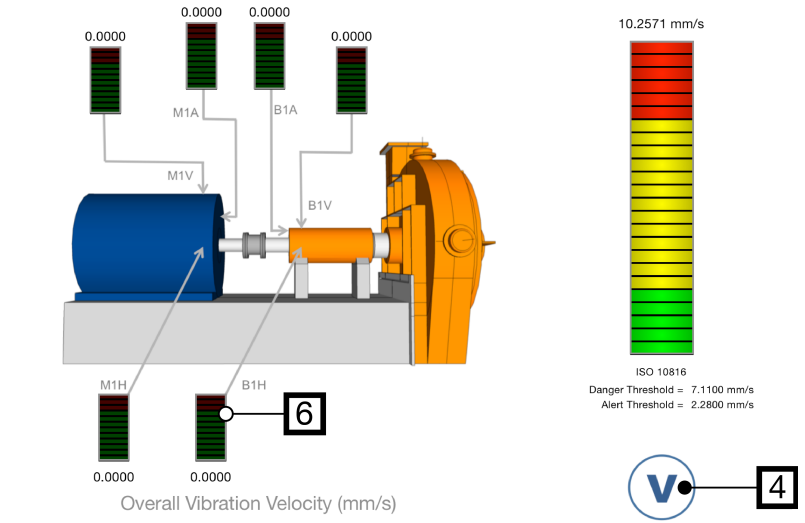
Operation

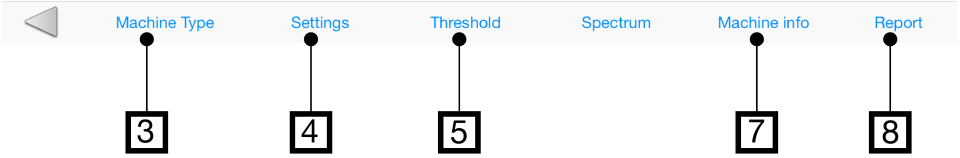
1. Tap on the **VibeRMS** App icon.
2. Select the **Measure Vibration** button.
3. Tap on **Machine Type** to select the machine arrangement from one of the three options, VibeRMS Library, User Custom and Standards.
4. Tap on the **Settings** button and select the measurement type Acceleration/Velocity or or Displacement. If A/V is selected then the user must select between Acceleration and Velocity by tapping the Selector button.
5. Tap on the **Threshold** button to set the threshold values.
6. Tap on the desired measurements points to start measuring process.
7. Add the machine information by tapping on the **Machine info** button.
8. Create a complete pdf report, which can be sent via email or saved in the iPad.

Note: All the settings and buttons in the Measure Vibration feature are explained with more detail in page 10.



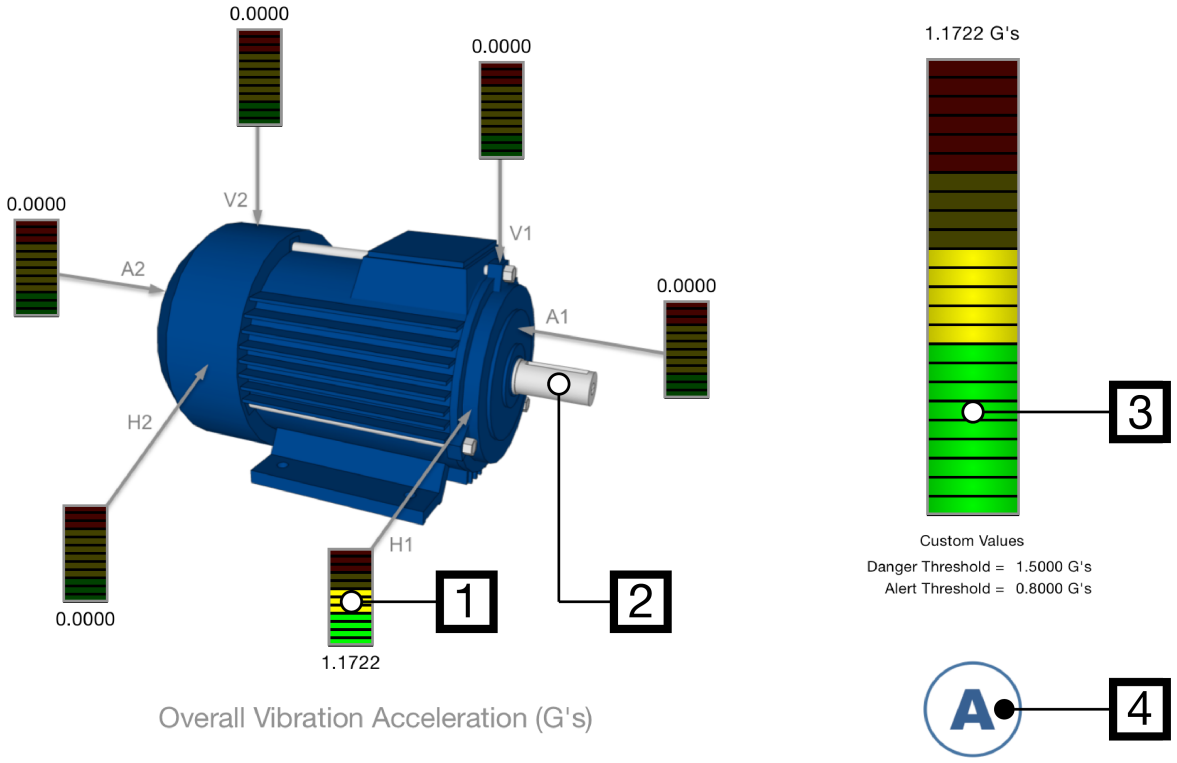






Measure Vibration

Main Screen



Measure Vibration

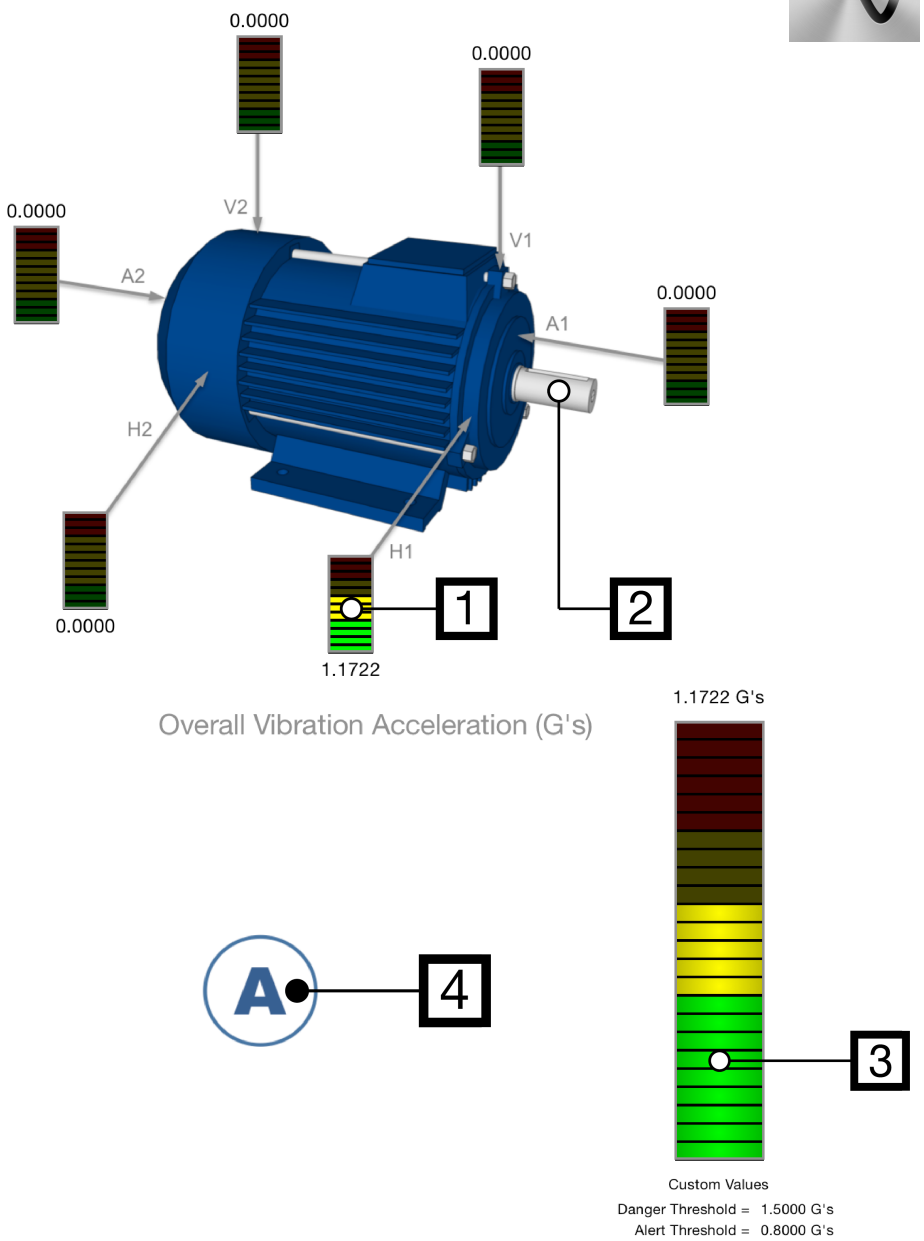
Description

1. Single Level Meter. By tapping on one of the SLM the VibeRMS will measure the Overall Vibration Value for each measurement point. Presenting a real time numerical value and the vibration level with a colored coded bar.

2. Machine. In this area of the screen the selected machine arrangement will be presented. The machine arrangement can be selected from the Machine Type button presented in the lower part of the screen.

3. Level Meter. This color coded bar shows a real time magnified view of the SLM, which includes threshold values, the parameter being measured and the parameter units.

4. Selector Button. This button allows the user to toggle between Vibration Acceleration & Vibration Velocity measurements. To measure Displacement, user must change this parameter in the setting menu.



Measure Vibration

Description

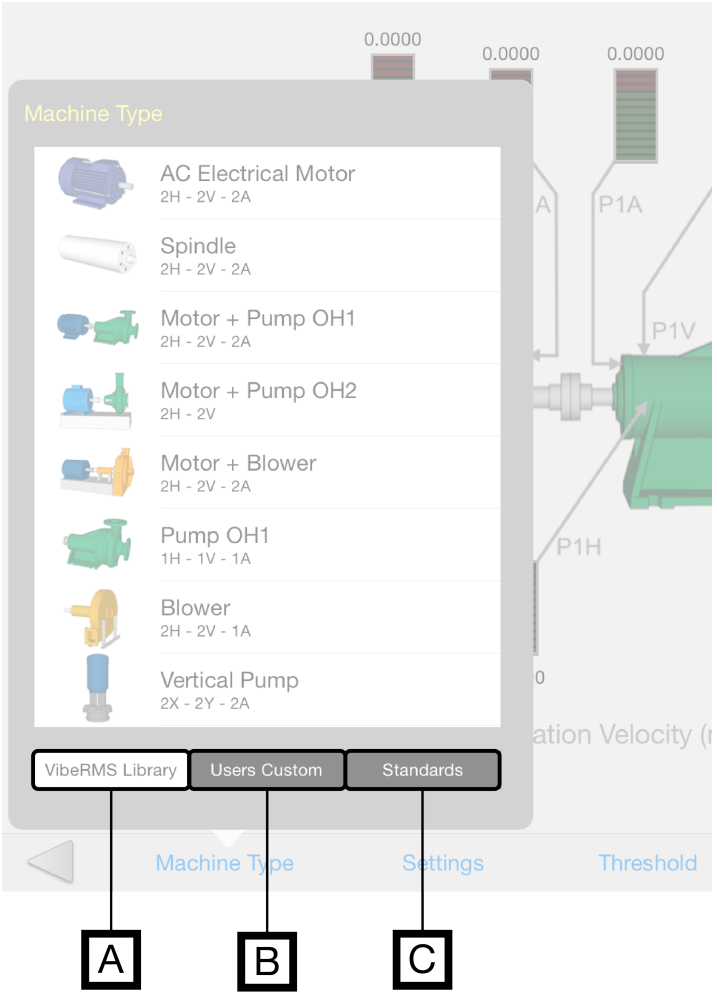
5. By tapping the **Machine Type Button** a dialogue box will appear presenting three options.

   A) **VibeRMS Library.** In this section a list of different pre-built machine arrangements are shown with their description and a small machine icon. This pre-builded arrangements will have all the measurements points already located.

   B) **User's Custom.** In this menu all the previously machine arrangements created with the "Build Machine" feature will be presented.

   C) **Standards.** This menu includes a list of pre-built standard machine arrangements.

Note. After selecting the machine, the user must tap outside the dialogue box area to continue.



Measure Vibration

Settings

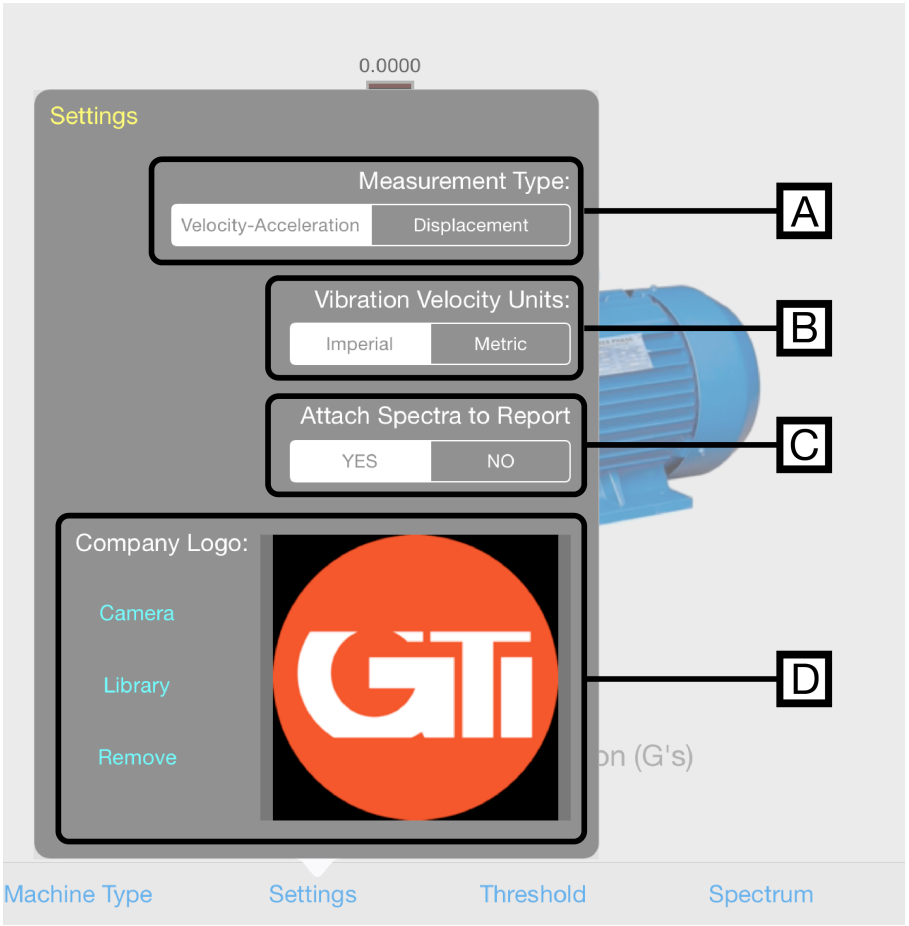
6. By clicking the Settings button the user can access the settings menu. The options available are the following:

   A) Measurement Type. The measurement type setting allows the user to select between Vibration Acceleration/Velocity measurement and Displacement measurement.

   B) The Units setting allows the user to select between imperial and metric units. Imperial Units will use G's, ips & mils, Metric units will show G's, mm/s & microns.

   C) Attach spectra to report allows the user to include automatically the measured spectra to the report.

   D) The company logo can be added here and will be included in the report's header. It can be selected from the photo album or from the camera.



Note. All changes will be set as defaults.

Measure Vibration

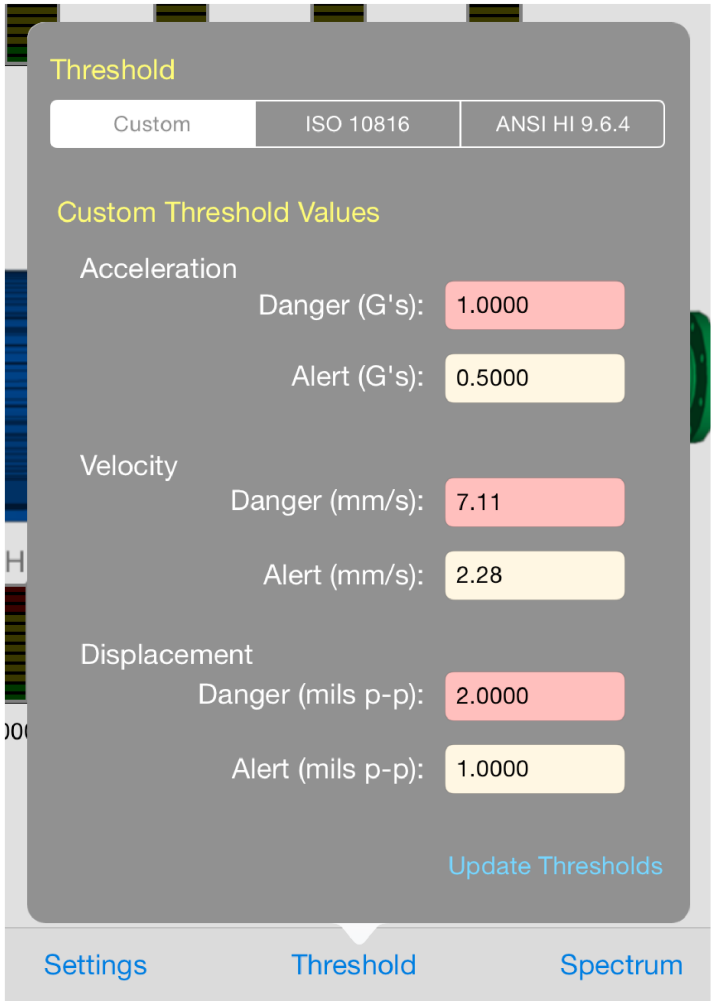
Threshold

7. The Threshold menu allows the user to select the alert and danger thresholds that will be presented in the level meter and will define the Green, Yellow and Red ranges. The thresholds can be set using three different methods.

   A) Custom. In the custom setting the user can add custom threshold values for Vibration Acceleration, Velocity and Displacement. The values can be entered by writing the values manually in each field.

Note: After writing the values the user must tap the button Update Thresholds so the new threshold values are used on the current measurement.

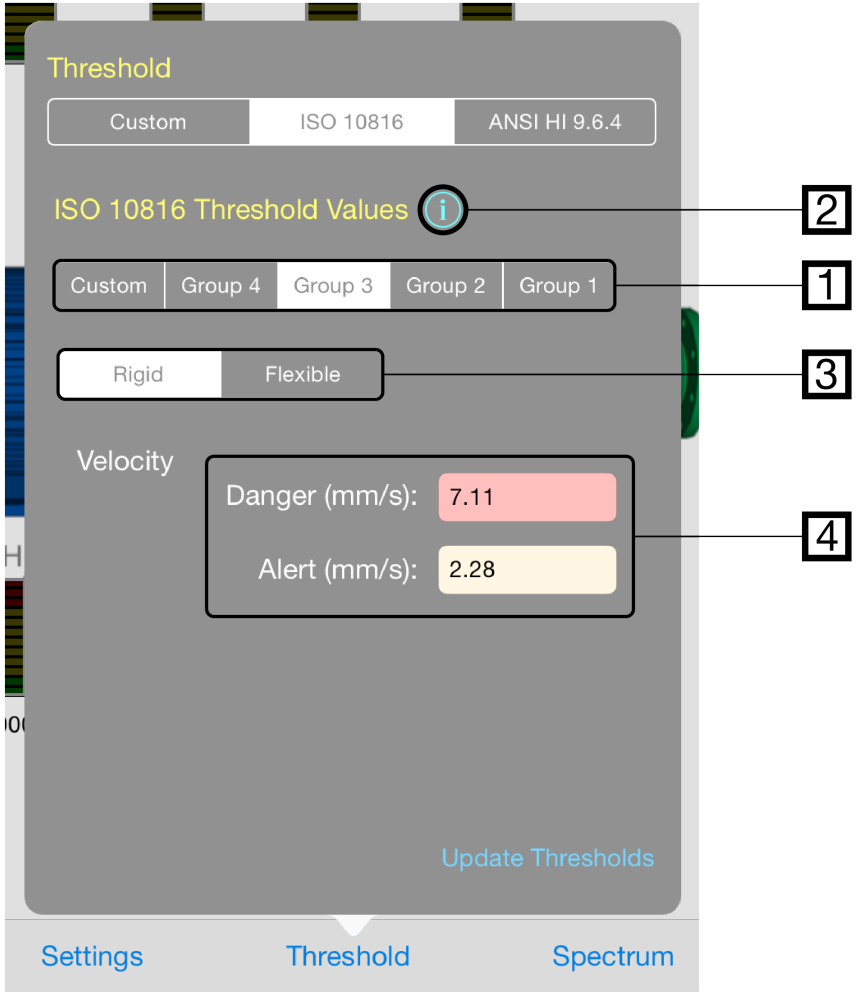
Note. After selecting the threshold, the user must tap outside the dialogue box area to continue.



Measure Vibration

Threshold

B) ISO 10816. Taping on this option, the user can select the threshold values from the ISO 10816 standard. There are four groups of machines to select and one custom value setting if the user want to add a more flexible threshold values **(1)**. By clicking the “i” info button the user can review the ISO 10816 chart **(2)**. The user can also select the class of the machine supports to be Rigid or Flexible **(3)**. The selected alert and danger threshold values will be shown in the lower part of the screen **(4)**.

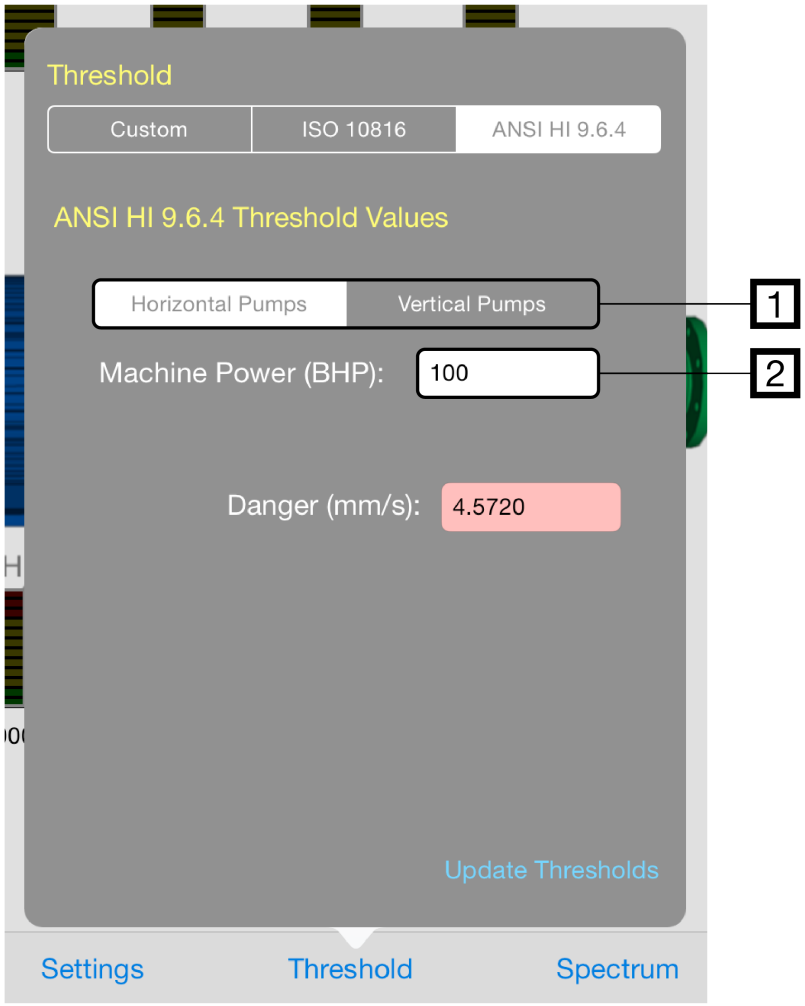


Measure Vibration

Threshold

C)When working with pumps the user can also select the threshold values from the ANSI HI 9.6.4 Standard. For the ANSI HI 9.6.4 Standards two options are presented Horizontal Pumps and Vertical Pumps (1). In both settings the Machine Power must be defined by the user (2).

Note: After writing the values the user must tap the button Update Thresholds so the new threshold values are used on the current measurement.



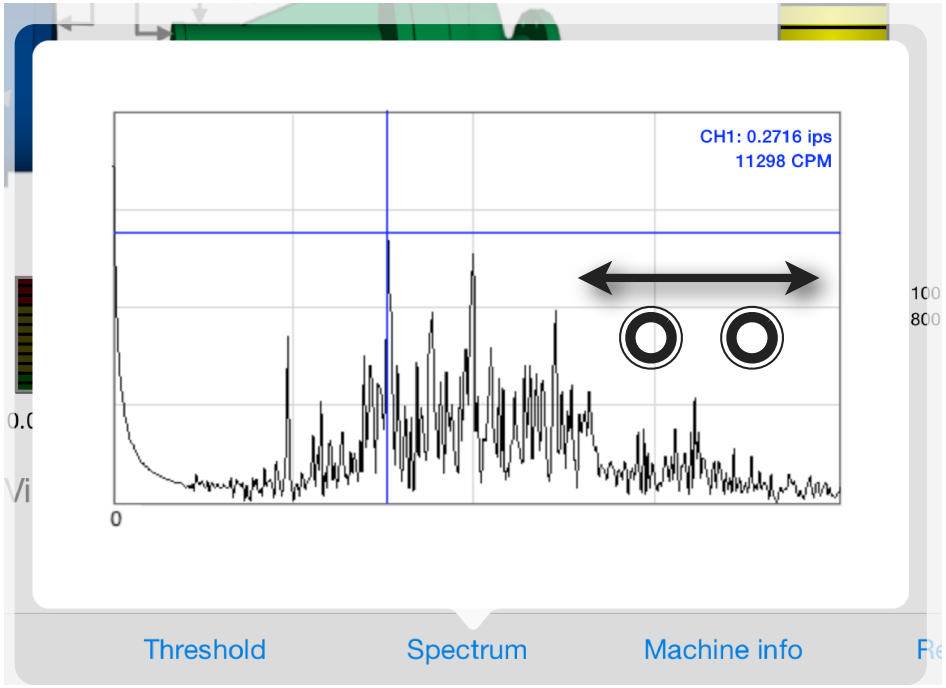
Measure Vibration

Spectrum

8. The vibration signals detected by the sensor can also be visualized in a real-time spectrum view.

The user just needs to tap the spectrum button and the spectrum plot will be presented. The user can change the scale by pinching horizontally with two fingers. The amplitude scale is autoscaled by VibeRMS.

If the VibeRMS is measuring Displacement the spectrum will be presented in acceleration, and the value of the marker will be the filtered displacement amplitude for the highest peak in the spectrum.



Measure Vibration

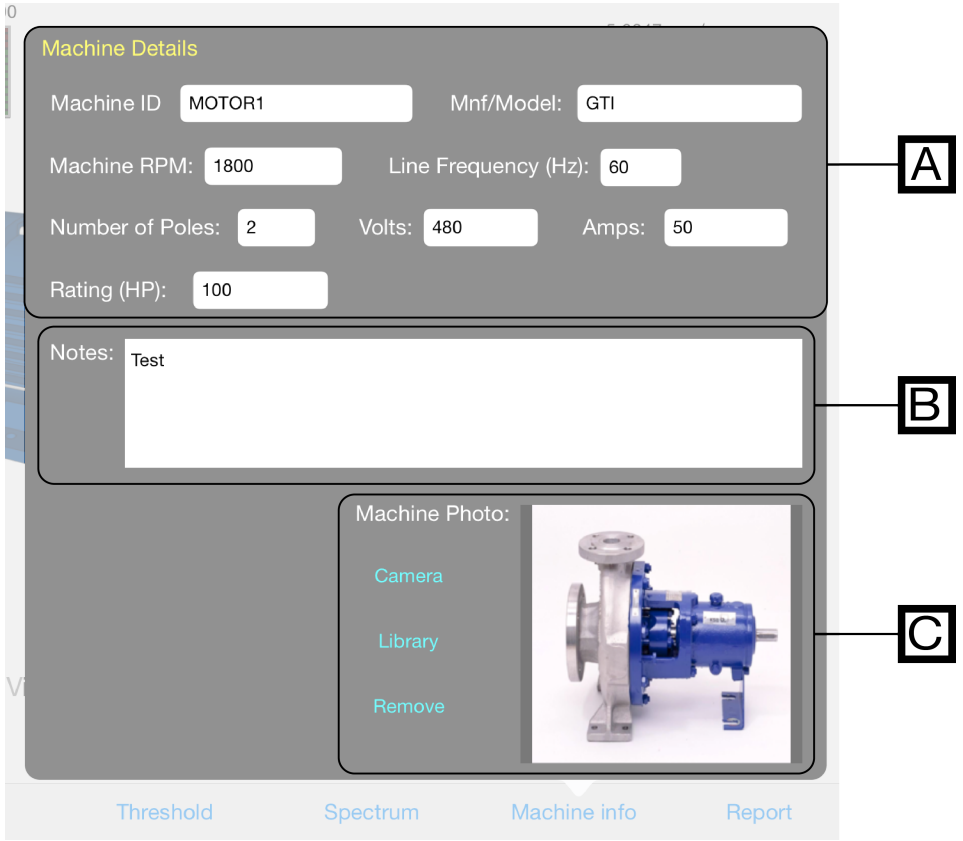
Machine Details

9. In this area the user can add all the machine information that it will be presented in the Report.

   A) All the technical machine information should be added first by tapping each field and writing with the screen keyboard.

   B) Notes can also be added by tapping in the notes area an writing with the screen keyboard.

   C) A machine picture can also be added by tapping camera button to take a photograph of the machine, or it was previously taken then it can be extracted from the photo library. This image will be included in the Report Header.



Measure Vibration

Report

10. A report can be created by tapping on the Report button. The report will present the following information:

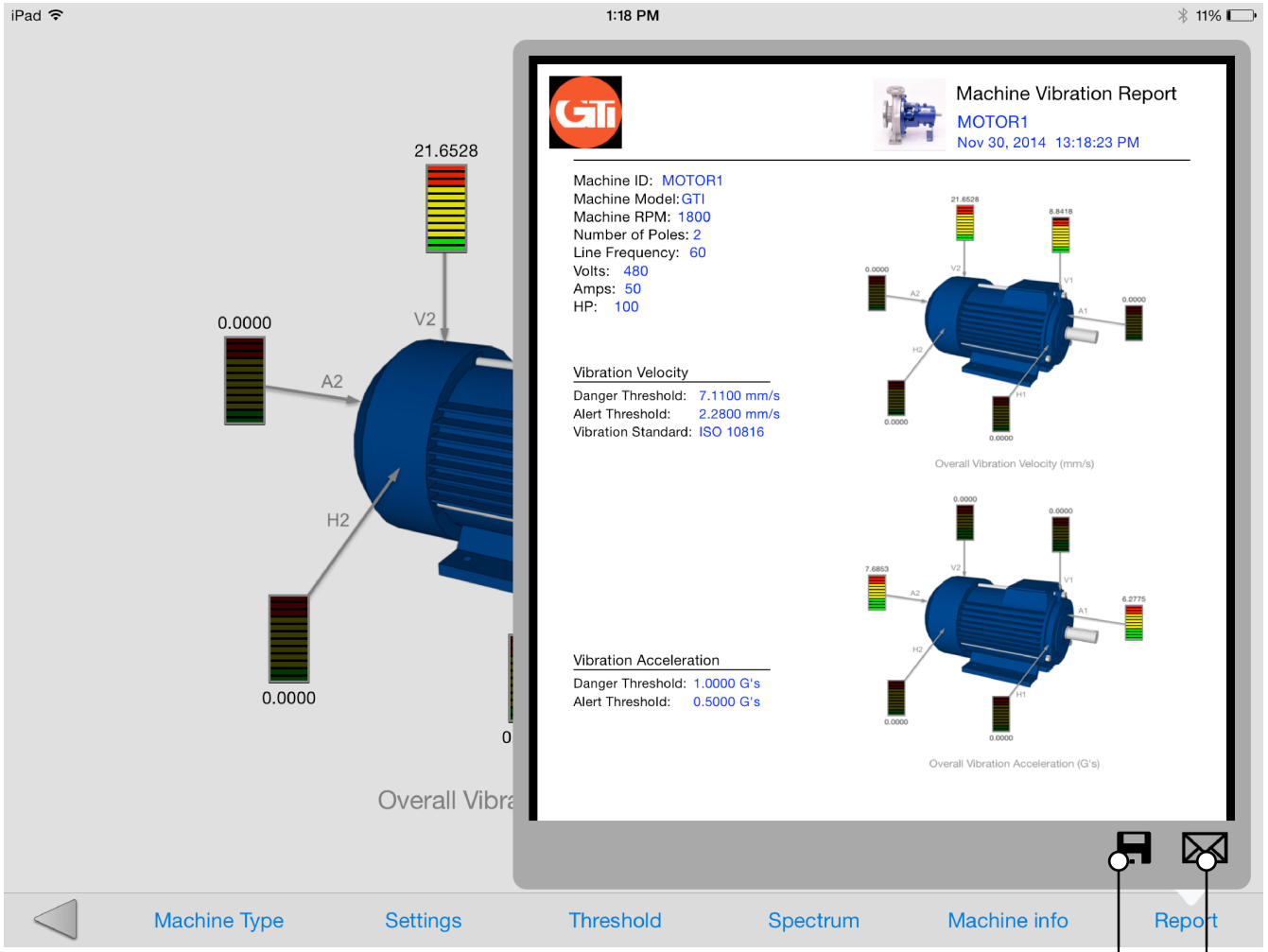
- Company Logo.
- Time and date of the measurements.
- Machine information and image.
- The machine arrangement presenting all the measurement points.
- Measurement type (Acceleration, Velocity or Displacement), including the threshold values and the standard used.
- If the user made more than one measurement the information for each parameter shall be presented separately.
- Spectrum plots will be presented if the user selected this option in the settings menu.
- In the lower part of the report two button will be presented. Email and save buttons.

A) By tapping on the email button a pdf report will be emailed to the desired address.

B) The Save Button allows the user the save a pdf report in the iPad, and can be accessed in the Report Manager from the Main Menu. User can also download directly to a computer using the iTunes File Share.

Measure Vibration

Report



Report Manager

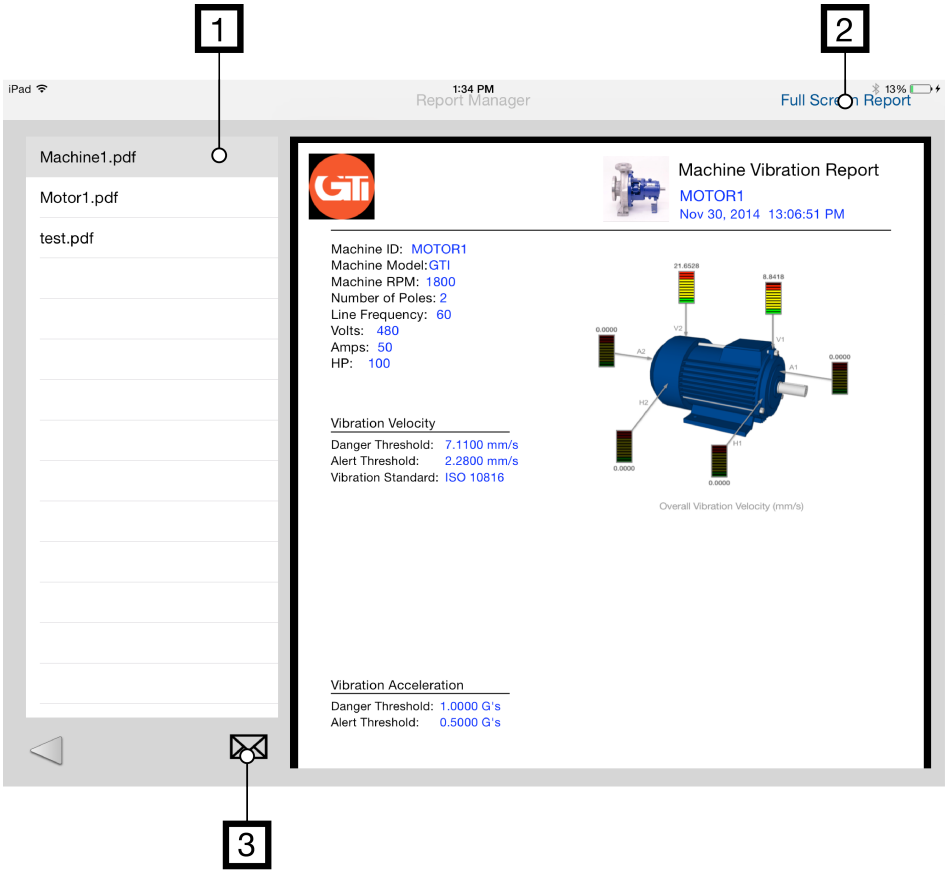
Operation

The Report Manager feature allows the user to visualize previously saved reports.

1. Select the name of the report that the user wants to be reviewed from the list.

2. The Full Screen Report button allows the user to review the report in a full screen view.

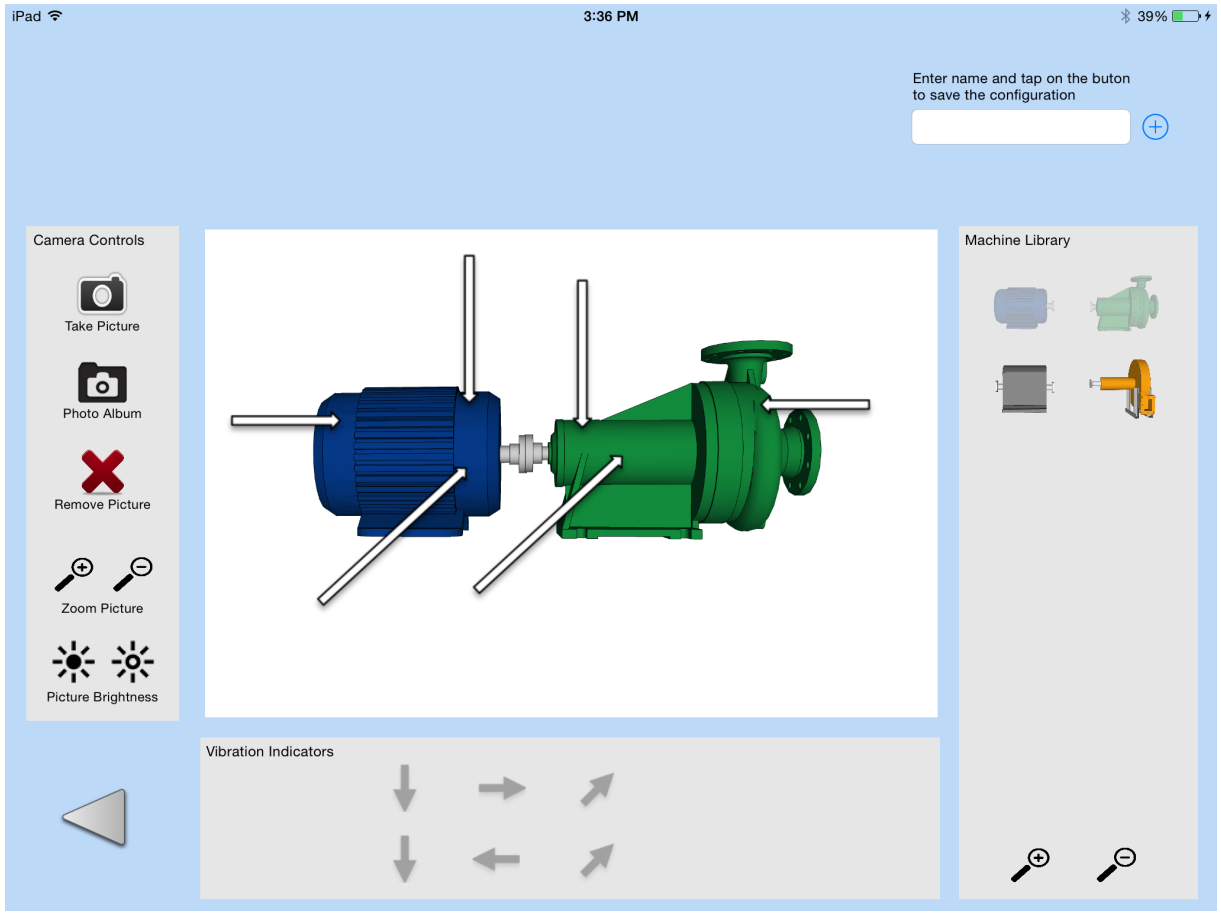
3. The Email button is used to send the report via email to the desired address.



Build Machine

Description

The **Build Machine** feature allows the user the possibility to create a custom machine arrangement and add all the measurement points for a machine arrangement not presented in the standard Library or VibeRMS Library. This feature can be accessed in VibeRMS's Main Menu by tapping on the **Build Machine** Button.



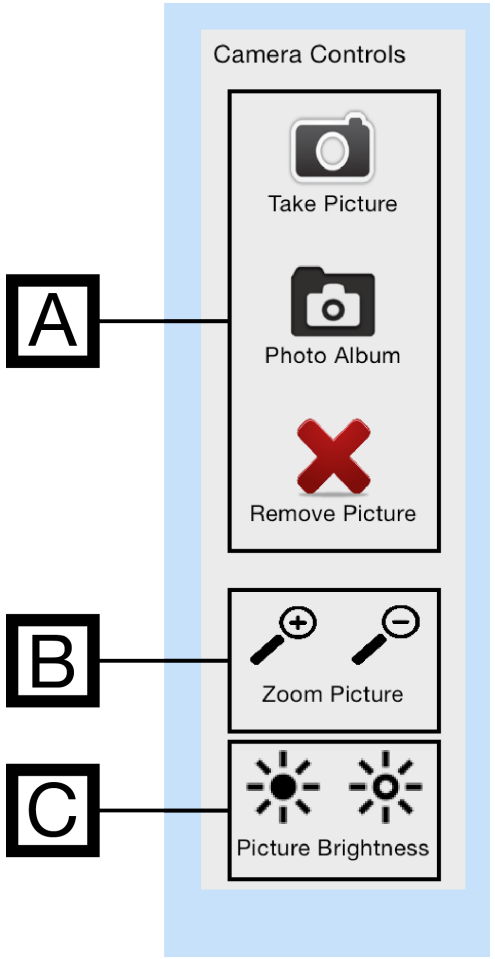
Build Machine

Operation

The **Build Machine** feature is organized in five areas: Camera Controls, Vibration Indicators, Machine Library, Name Field, and Machine Draft Field.

1) The **Build Machine** feature has the ability to take pictures from the camera or photo library to create a custom machine arrangement with an actual picture of the machine.

In the **Camera Controls** area the user can take a photo using the camera o select it from the photo album (A), zoom in or out (B), and adjust picture brightness (C).



Build Machine

Operation

D)Different kinds of indicators can be added to the machine. These indicators are used to point out where there measurements are going to be made.

To add or remove an indicator the user must tap on the indicator button presented in the Vibration Indicators area. After adding it the indicator can be positioned by dragging it on the screen with the finger or stylus.

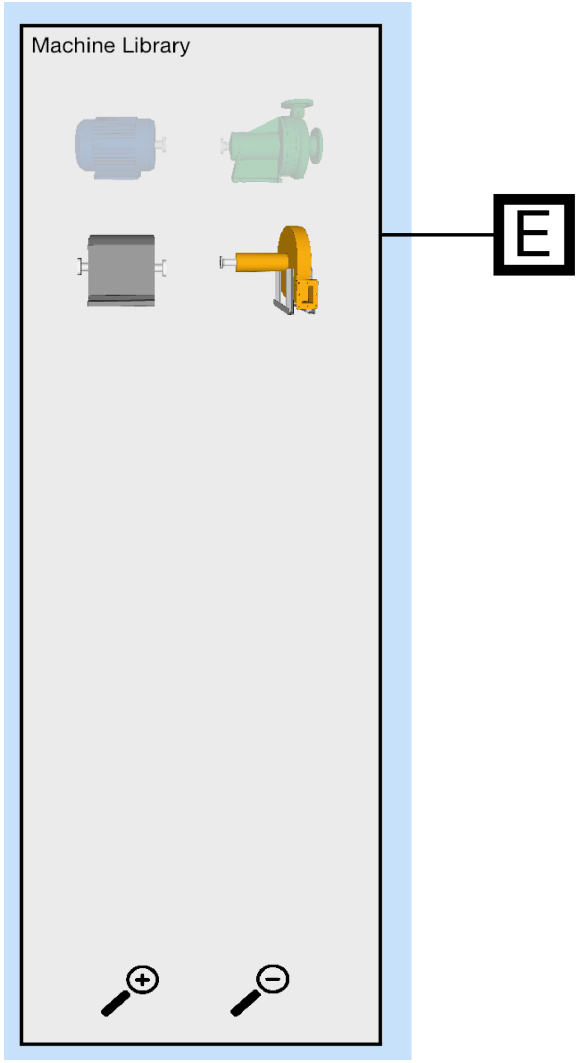
Build Machine

Operation

In the Machine Library area a selection of machines are presented, if the user does not want to use a photo. To add or remove a machine to the draft area the user must tap on any of the machine buttons presented in the Machine Library area.

Each machine can be positioned separately by dragging it with the finger or stylus.

After the machine arrangement is completed and the measurement indicators added. The user must tap on the name area, write the name and tap on the + button. The new machine will be saved, and can be accessed in the Machine Type menu in the Measure Vibration feature.



SETUP

Calibration

To calibrate the system first tap on the **Calibrate** button of the main menu. Mount the accelerometer to the shaker and connect it to Channel 1 in the DAQ box *(Page 2,3)*; turn on the 1G shaker and tap on the **Calibrate for 1G**. If the user knows the calibration value for the system, it can be entered directly to the field.